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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,144	10/31/2003	Douglas D. Boom	5038-331	2967

32231 7590 08/02/2006

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EXAMINER

KIM, KENNETH S

ART UNIT PAPER NUMBER

2111

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,144

Applicant(s)

BOOM ET AL.

Examiner

Kenneth S. KIM

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

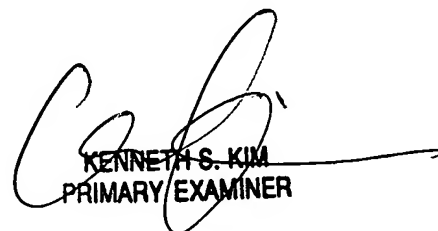
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-23 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-23, and 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


KENNETH S. KIM
PRIMARY EXAMINER

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. Claims 1-15, 17-23, and 25-28 remain for examination.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-12 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant failed to provide adequate description of *concurrently in-line staging* and it is not clear what is meant by the phrase.

4. Claims 11-13, 22, 23, and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant failed to adequately teach how to insert or retire micro-opcodes into an instruction cache and it would require an ordinary skill in the art undue experimentation to retire or insert micro-opcodes in an instruction cache.

The specification merely states that micro-opcodes are retired or inserted, however, does not expressly describe how an instruction cache storing instructions can also store micro-opcodes.

5. Applicant is requested to clarify the meaning of retiring into instruction cache for re-execution and reuse, when the instructions executed comes from and are already present in the instruction cache.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-15, 17-23, and 25-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claim 1, it is not clear what is meant by "concurrently in-line staging".

(b) Claims 11 and 13, it is not clear how micro-opcodes can be inserted into an instruction sequence within an instruction cache.

(c) Claim 14, it is not clear whether the instruction queue mechanism contains instructions or p-codes.

(d) Claim 22, it is not clear what is meant by "*predicated on* an instruction stream" and there appears to be confusing uses of "instruction sequence or stream" to refer to "p-code sequence or stream".

(e) Claim 25, "the interrupt service instructions" lacks antecedent basis, and the same as (d) for "to insert into an instruction sequence decoded micro-opcodes.

(f) Claim 28, there are confusing uses of "micro-ops" and micro-opcodes", and it is not clear whether the retiring is done to an instruction queue mechanism or to an instruction cache.

Applicant is reminded that upon clarification, some claims may be subject to restriction requirement.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 2, 5-9, 11, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Arora et al, U.S. Patent No. 6,625,693, cited in the previous office action.

The rejection is respectfully maintained for the reason set forth in the previous office action. The reference teaches inserting ISR instruction in the instruction queue, thus concurrently in-line staging the ISR instructions and other instructions (col. 3, line 46).

10. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Crump et al, U.S. Patent No. 5,557,759, cited in the previous office action.

The rejection is respectfully maintained for the reason set forth in the previous office action. The reference teaches staging the ISR instruction right after the

mainstream instructions, thus concurrently in-line staging the ISR instructions (col. 18, line 23; when there is a hit, ISR instructions are processed immediately).

11. Applicant's arguments filed July 7, 2006 have been fully considered but they are not persuasive.

Applicant argued that the references do not teach "concurrent in-line staging."

The reference, however, teaches intervening with ISR instructions during mainstream instruction processing, as is understood of the phrase "concurrent in-line staging".

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Swanstrom et al taught a method of servicing interrupt when processor is performing task switch.

Hammer et al taught a method of inserting ISR instructions into pipeline.

Frank et al taught a method of inserting ISR instructions into instruction stream.

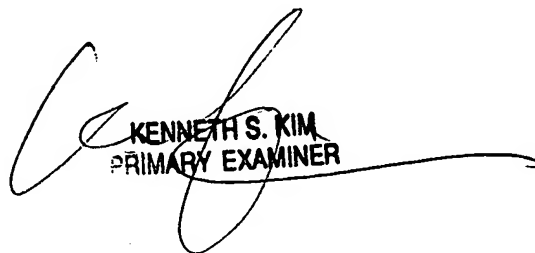
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth S KIM whose telephone number is (571) 272-3627. The examiner can normally be reached on M-F (8:30-17:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on (571) 272-3632. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for all communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

July 28, 2006


KENNETH S. KIM
PRIMARY EXAMINER